

Application Serial No.: 10/016,713
Attorney Docket No.: 0190104

REMARKS

This is in response to the *Final Office Action*, dated July 13, 2006, where the Examiner has rejected claims 4-6, 8-10 and 33-34. Reconsideration and allowance of pending claims 4-6, 8-10 and 33-34 in view of the following remarks are respectfully requested.

A. Rejection of Claims 4-6, 8 and 10

The Examiner has rejected claims 4-6 and 8, under 35 USC §102(b), as being anticipated by U.S. Patent Number 5,238,856 to Tokumitsu ("Tokumitsu"). Further, the Examiner has rejected claim 10, under 35 USC §103(a), as being unpatentable over Tokumitsu in view of U.S. Patent Number 5,604,077 to Kono, et al. ("Kono").

In response to Applicant's explanation regarding patentable distinctions between pending claim 4 and Tokumitsu, the Examiner states that "the claims are open to form a setback after imparting the lens formation patterns, since the claims only disclose a setback in the lens patterns." Applicant respectfully submits that for the purpose of distinguishing pending claims over Tokumitsu, whether or not "the claims are open to form a setback after imparting the lens formation patterns" is not controlling. The issue is that Tokumitsu does not disclose a lens formation pattern that includes a setback. It is respectfully submitted that pending claims at least include some elements that are not disclosed (and not taught or suggested) by Tokumitsu, namely, "wherein the first lens formation pattern further includes a first setback from the boundary for each of the first plurality of micro-lenses to be formed; ... wherein the second lens formation pattern further includes a second setback from the boundary for each of the second plurality of micro-lenses to be formed.

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As discussed with the Examiner, Applicant respectfully submits that independent claim 4 is patentably distinguishable over Tokumitsu. Indeed, Tokumitsu's step of rounding off the corner angles occurs after imparting a lens formation pattern in Tokumitsu, and it is needed because Tokumitsu fails to apply a setback from the boundary for each of the micro-lenses to be formed. In other words, Tokumitsu's step of rounding off must occur after the lens formation and is not part of imparting a lens formation pattern. Therefore, the rounding off step of Tokumitsu cannot and does not teach one of ordinary skill in the art to impart a lens formation pattern having a setback, as claimed in claim 4.

Even more, applicant respectfully directs the Examiner's attention to claim 10 of the present application, where it recites "placing a first formation mask comprising the first lens formation pattern." As discussed with the Examiner, Tokumitsu does not disclose such first formation mask that has a first lens formation pattern further including a first setback from the boundary for each of the first plurality of micro-lenses to be formed. This essential shortcoming of Tokumitsu is not remedied by Kono either. Tokumitsu does not disclose that the formation mask has a first formation pattern with a setback. Rather, Tokumitsu discloses rounding off the corner angles after formation. Further, Kono is completely silent about the mask having setbacks as well. Therefore, a combination of Tokumitsu and Kono could not render claim 10 obvious by creating a setback in the mask, where neither reference teaches or suggests such modification or combination.

As explained on page 11, lines 9-18 of the present application:

"One undesirable artifact of the exposure process is the relatively poor resolving power of the micro-lens suitable material itself. This means that as the micro-lens suitable material is subjected to a lens formation pattern, some amount of bleeding will occur. The lens formation pattern must accommodate this

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inherent bleeding phenomenon. Accommodation of the bleeding may be accomplished by making the rectangular shapes 20 somewhat smaller than the outer perimeter of the boundary region 5 encompassing each active sensing region 10. This setback precludes the formation of micro-lenses that occupy the entire area defined by the boundary region 5. This results in a diminished efficiency for any micro-lens array fabricated using traditional techniques." (Emphasis added.)

To this end, the present application utilizes a novel process wherein the micro-lenses are formed in two or more stages, while as described in conjunction with Fig. 6 of the present application, due to the bleeding phenomenon that occurs during processing of the micro-lens suitable material deposited on the semiconductive substrate, a setback 60 is introduced at the boundary of the micro-lenses to ensure that the micro-lens suitable material will form distinct islands after any unwanted material is removed. (Page 12, lines 18-27.) Furthermore, the present application reads:

Further distinguishing the present invention according to this example of embodiment, each of these islands of micro-lens suitable material occupies an area within the boundary region perimeter that is larger than any exposure resolution setback ordinarily associated with imparting lens formation patterns onto the micro-lens suitable material in a single pass. (Page 7, lines 8-12.)

According to this example embodiment, each island of micro-lens suitable material occupies an area within a boundary perimeter surrounding the active region that is greater than that associated with imparting lens formation patterns onto the micro-lens suitable material in a single pass. (Page 7, lines 24-27.)

In fact, Applicant respectfully submits that Tokumitsu's step of rounding off teaches away from introducing a setback in the lens formation pattern, as recited in claim 4, because it is necessary for Tokumitsu to round off or break off the corner angles so as to avoid connecting the lenses with each other, because Tokumitsu does not impart a lens formation pattern having a setback, as recited in claim 4. For the same reasons, Tokumitsu's step of rounding off teaches

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away from the invention of claim 10, where the rounding off is necessary, because Tokumitsu does not include a setback, and for this reason alone, Tokumitsu cannot be combined with Kono to create a mask having a setback.

For the foregoing reasons, Applicant respectfully submits that the present invention as defined by independent claim 4, as amended, is not taught, disclosed, or suggested by Tokumitsu. Thus, independent claim 4 is patentably distinguishable over Tokumitsu. As such, claims 5-6 and 8 depending from amended independent claim 4 are, *a fortiori*, also patentably distinguishable over Tokumitsu for at least the reasons presented above and also for additional limitations contained in each dependent claim.

For the reasons stated above in conjunction with patentability of claim 4, and also specifically, in conjunction with patentability of claim 10, Applicant respectfully submits that at the very least claim 10 should be found allowable.

B. Rejection of Claims 33-34 under 35 USC §103(a)

The Examiner has rejected claims 33-34, under 35 USC §103(a), as being unpatentable over Tokumitsu in view Kono. Applicant respectfully submits that claims 33-34 depend from independent claim 4 and thus, claims 33-34 should be allowed at least for the same reasons discussed above in conjunction with patentability of independent claim 4.

C. Allowability of Claim 9

Applicant respectfully submits that claim 9, which has not been rejected by the Examiner, should also be allowed.

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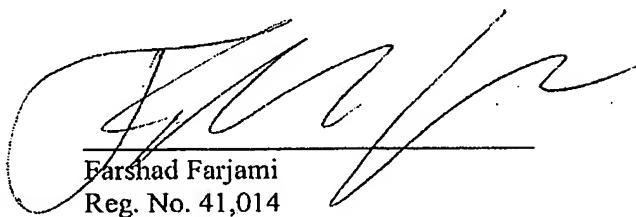
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D. Conclusion

For all the foregoing reasons, an early Notice of Allowance directed to claims 4-6, 8-10 and 33-34 pending in the present application is respectfully requested.

Respectfully Submitted,
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